



AF *[Signature]*

Attorney Docket No. 9010-3

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Christine E. Browning et al.                      Group Art Unit: 1631  
Serial No.: 09/670,214                                      Examiner: Cheyne D. Ly  
Filed: September 25, 2000                                  Confirmation No.: 4277  
For: SYSTEMS, METHODS AND COMPUTER PROGRAM PRODUCTS FOR  
PREPARING, DOCUMENTING AND REPORTING CHEMICAL PROCESS  
HAZARD ANALYSES

June 28, 2005

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**TRANSMITTAL OF APPEAL BRIEF  
(PATENT APPLICATION--37 C.F.R. § 41.37)**

1. Transmitted herewith is the APPEAL BRIEF for the above-identified application, pursuant to the Notice of Appeal filed on April 29, 2005.

2. This application is filed on behalf of  
☐ a small entity  
☒ other than small entity

3. Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:  
☐ small entity \$250.00  
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Respectfully submitted,

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Susan E. Freedman  
Date of Signature: June 28, 2005



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**APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37**

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" filed April 29, 2005.

**Real Party In Interest**

The real party in interest is assignee Eastman Chemical Company, Kingsport, Tennessee.

**Related Appeals and Interferences**

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

**Status of Claims**

Appellants appeal the final rejection of Claims 2-16, 26-39, 48-61 and 87-101 in the final Office Action of February 1, 2005 (the "Final Office Action"), which, as of the filing date of this Appeal Brief, remain under consideration. The claims at issue as included in Appellants' response to the Office Action of June 9, 2004 are attached hereto as Appendix A.

**Status of Amendments**

The attached Appendix A presents the pending claims and the corresponding status of each of the pending claims. All amendments have been entered in the present case.

### **Summary of Claimed Subject Matter**

Appellants appeal the final rejection of independent Claims 87, 92 and 97. These claims are method, data processing system and computer program product analogs of one another. Accordingly, only independent method Claim 87 will be analyzed. The remaining dependent claims are patentable at least as depending from a patentable independent claim.

Independent Claim 87 is directed to a method of conducting a Process Hazard Analysis (PHA) comprising five steps that are performed in a data processing system. The first step is selecting a chemical process to be evaluated (Specification, Page 4, lines 17-18). Then, a study type to be performed on the process is selected (Specification, Page 4, lines 19-28; Figure 1A, Block 100). In the third step, the selected study type is conducted on the chemical process in the data processing system, wherein the chemical process is evaluated in the data processing system for the presence of a hazard scenario (Specification, Page 17, lines 18-30; Figure 1B, Block 200). In the fourth step, a resolution plan to the hazard scenario is generated in the data processing system, wherein the resolution plan includes a final action item, at least one interim action item to be completed prior to the completion of the final action item, and at least one target date for completing an action item (Specification, Page 18, lines 14-28; Figure 1B, Block 300). Finally, the resolution plan is tracked in the data processing system, to monitor for completion of action items, wherein the status of the resolution plan is monitored for completion of action items by the target date (Specification, Page 18, line 29-Page 19, line 3; Figure 1A, Block 400).

### **Grounds of Rejection To Be Reviewed On Appeal**

Independent Claims 87, 92 and 97 stand rejected under 35 USC §101 as being directed to non-statutory algorithm-type subject matter.

Independent Claims 87, 92 and 97 also stand rejected under 35 USC §103(a) as being unpatentable over the document entitled "*A Team-Based Approach to Mechanical Integrity Implementation*" by Edwin F. Herrington, III, Summer 1996 (hereinafter "Herrington"), in view of U.S. Patent 5,950,217 to Heinlein et al., entitled "*Computer Network System and Method for Process Safety Management (PSM) Including Facilitator Display and Multiple Participant Workstations*" (hereinafter "Heinlein"), and in further view of "*Occupational Safety and Health Administration*" (61:56746-56856, November 04, 1996) (hereinafter "OSHA").

## Argument

### **I. Introduction to 35 USC §101 Analysis**

MPEP §2106 entitled "Patentable Subject Matter - Computer Based Inventions" provides examination guidelines for computer-related inventions. As noted in MPEP §2106.IV.A.:

#### **A. Consider the Breadth of 35 U.S.C. 101 Under Controlling Law**

As the Supreme Court has held, Congress chose the expansive language of 35 U.S.C. 101 so as to include "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). Accordingly, section 101 of title 35, United States Code, provides:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

In *Chakrabarty*, 447 U.S. at 308-309, 206 USPQ at 197, the court stated:

In choosing such expansive terms as "manufacture" and "composition of matter," modified by the comprehensive "any," Congress plainly contemplated that the patent laws would be given wide scope. The relevant legislative history also supports a broad construction. The Patent Act of 1793, authored by Thomas Jefferson, defined statutory subject matter as "any new and useful art, machine, manufacture, or composition of matter, or any new or useful improvement [thereof]." Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318. The Act embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." V Writings of Thomas Jefferson, at 75-76. See *Graham v. John Deere Co.*, 383 U.S. 1, 7-10 (148 USPQ 459, 462-464) (1966). Subsequent patent statutes in 1836, 1870, and 1874 employed this same broad language. In 1952, when the patent laws were recodified, Congress replaced the word "art" with "process," but otherwise left Jefferson's language intact. The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory subject matter to "include anything under the sun that is made by man." S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952). [Footnote omitted]

This perspective has been embraced by the Federal Circuit:

The plain and unambiguous meaning of section 101 is that any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if it meets the requirements for patentability set forth in Title 35, such as those found in sections 102, 103, and 112. The use of the expansive term

"any" in section 101 represents Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in section 101 and the other parts of Title 35. . . . Thus, it is improper to read into section 101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations.

*Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556.

As cast, 35 U.S.C. 101 defines four categories of inventions that Congress deemed to be the appropriate subject matter of a patent; namely, processes, machines, manufactures and compositions of matter. The latter three categories define "things" while the first category defines "actions" (i.e., inventions that consist of a series of steps or acts to be performed). See 35 U.S.C. 100(6) ("The term 'process' means process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.").

Federal courts have held that 35 U.S.C. 101 does have certain limits. First, the phrase "anything under the sun that is made by man" is limited by the text of 35 U.S.C. 101, meaning that one may only patent something that is a machine, manufacture, composition of matter or a process. See, e.g., *Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556; *Warmerdam*, 33 F.3d at 1358, 31 USPQ2d at 1757 (Fed. Cir. 1994). Second, 35 U.S.C. 101 requires that the subject matter sought to be patented be a "useful" invention. Accordingly, a complete definition of the scope of 35 U.S.C. 101, reflecting Congressional intent, is that any new and useful process, machine, manufacture or composition of matter under the sun that is made by man is the proper subject matter of a patent.

The subject matter courts have found to be outside the four statutory categories of invention is limited to abstract ideas, laws of nature and natural phenomena. While this is easily stated, determining whether an applicant is seeking to patent an abstract idea, a law of nature or a natural phenomenon has proven to be challenging. These three exclusions recognize that subject matter that is not a practical application or use of an idea, a law of nature or a natural phenomenon is not patentable. See, e.g., *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498, 507 (1874) ("idea of itself is not patentable, but a new device by which it may be made practically useful is"); *Mackay Radio & Telegraph Co. v. Radio Corp. of America*, 306 U.S. 86, 94, 40 USPQ 199, 202 (1939) ("While a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be."); *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759 ("steps of 'locating' a medial axis, and 'creating' a bubble hierarchy . . . describe nothing more than the manipulation of basic mathematical constructs, the paradigmatic 'abstract idea' ")....

Appellants respectfully submit that the pending rejections under 35 USC §101 should be reversed because process hazard analysis (PHA), chemical processes study types, evaluation of chemical data processes, resolution plans and tracking thereof, as defined by the

independent claims, clearly describe a practical application that produces a useful, concrete and tangible result.

The patentability of the pending claims under 35 USC §101 is discussed in detail hereinafter.

**A. Independent Claims 87, 92 and 97 Are Patentable Under 35 USC §101**

Independent Claim 87 is directed to a method of conducting a process hazard analysis comprising a series of steps that are performed in a data processing system, and has been reproduced below:

87. A method of conducting a process hazard analysis (PHA), comprising the following steps that are performed in a data processing system:

- selecting a chemical process to be evaluated;
- selecting a study type to be performed on the chemical process;
- conducting the selected study type on the chemical process in the data processing system, wherein the chemical process is evaluated in the data processing system for the presence of a hazard scenario;
- generating a resolution plan to the hazard scenario in the data processing system, wherein the resolution plan comprises a final action item, at least one interim action item to be completed prior to the completion of the final action item and at least one target date for completing an action item; and
- tracking the resolution plan in the data processing system, to monitor for completion of action items, wherein the status of the resolution plan is monitored for completion of action items by the target date. (Emphasis added.)

As stated in MPEP §2106(II)(A):

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (*Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); *In re Ziegler*, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful....

[T]ransformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and

tangible result' -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.... (*State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601) (Emphasis added.)

The above-underlined language of Claim 87 clearly defines a practical application that produces a useful, concrete and tangible result. The practical application includes conducting a study type on a chemical process and evaluating for the presence of a hazard scenario. The useful, concrete and tangible result includes generating a resolution plan, and tracking the resolution plan.

Moreover, as noted at MPEP Page 2100-12:

In practical terms, claims define nonstatutory processes if they:

- consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm");
- or
- simply manipulate abstract ideas, e.g., a bid (*Schrader*, 22 F.3d at 293-94, 30 USPQ2d at 145859) or a bubble hierarchy (*Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759), without some claimed practical application.

Again, Appellants respectfully submit that the above-underlined recitations of Claim 87 clearly recite a practical application that produces a useful, concrete and tangible result.

Finally, as further discussed in the MPEP:

Office personnel have the burden to establish a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. Only when the claim is devoid of any limitation to a practical application in the technology arts should it be rejected under 35 U.S.C. Sec. 101. ... An applicant may assert more than one practical application, but only one is necessary to satisfy the utility requirement.

MPEP, Sec. 2106(II.)(A.), Page 2100-7, col. 1. (Emphasis added.)

In fact, Appellants respectfully submit that Claim 87 is clearly statutory, because it falls under one of the "safe harbors" defined at MPEP Pages 2100-15 - 2100-17. In particular, Claim 87 clearly relates to "Manipulation of Data Representing Physical Objects or Activities (Pre-Computer Process Activity)" because Claim 87 describes, at length, the evaluation and study of data related to chemical processes, hazard scenarios and resolution plans for hazard scenarios.

The "Response to Arguments" section of the Final Office Action states that the above arguments are unpersuasive. In particular, Paragraph 8 of the Final Office Action states:

Applicant's arguments have been fully considered and found to be unpersuasive because claim 87 recites "steps that are performed in a data processing system." Further, all the steps including the steps for generating and tracking a resolution plan are performed "in the data processing system." One question comes to mind is what "useful, concrete and tangible result" has been produced by the claimed invention when all the steps and results (plan) are stored within a data processing system. (Emphasis added.)

In response, Appellants respectfully submit that the test for a practical application cannot be that "all the steps including the steps for generating and tracking a resolution plan are performed 'in the data processing system'" because, if this was the case, then no software would be patentable without separate hardware recitations. Rather, Appellants respectfully submit that the above-underlined recitations of Claim 87 clearly show that the invention is directed to produce a useful, concrete and tangible result that provides a certain level of real-world value, as required by the MPEP, as opposed to subject matter that represents nothing more than an idea or concept, or simply a starting point for future investigation or research.

Moreover, Paragraph 9 of the Final Office Action does not accept Appellants' arguments regarding a "safe harbor" because:

It is re-iterated that the claimed invention does not fall under one of the safe harbors because the claim [sic] invention does [not] recite any steps that cause "a physical transformation."

In response, Appellants respectfully submit that the safe harbor in MPEP Pages 2100-16 - 2100-17, related to "Manipulation Of Data Representing Physical Objects Or Activities (Pre-Computer Process Activity)" states:

Another statutory process is one that requires the measurements of physical objects or activities to be transformed outside of the computer into computer data (*In re Gelnovatch*, 595 F.2d 32, 41 n.7, 201 USPQ 136, 145 n.7 (CCPA 1979) (data-gathering step did not measure physical phenomenon); *Arrhythmia*, 958 F.2d at 1056, 22 USPQ2d at 1036), where the data comprises signals corresponding to physical objects or activities external to the computer system, and where the process causes a physical transformation of the signals which are intangible representations of the physical objects or activities. *Schrader*, 22 F.3d at 294, 30 USPQ2d at 1459 citing with approval *Arrhythmia*, 958 F.2d at 1058-59, 22 USPQ2d at 1037-38; *Abele*, 684 F.2d at 909, 214 USPQ at 688; *In re Taner*, 681 F.2d 787, 790, 214 USPQ 678, 681 (CCPA 1982). Examples of this type of claimed statutory process include the following:

- A method of using a computer processor to analyze electrical signals and data representative of human cardiac activity by converting the signals to time segments, applying the time segments in reverse order to a high pass filter means, using the computer processor to



determine the amplitude of the high pass filter's output, and using the computer processor to compare the value to a predetermined value. In this example the data is an intangible representation of physical activity, i.e., human cardiac activity. The transformation occurs when heart activity is measured and an electrical signal is produced. This process has real world value in predicting vulnerability to ventricular tachycardia immediately after a heart attack.

- A method of using a computer processor to receive data representing Computerized Axial Tomography ("CAT") scan images of a patient, performing a calculation to determine the difference between a local value at a data point and an average value of the data in a region surrounding the point, and displaying the difference as a gray scale for each point in the image, and displaying the resulting image. In this example the data is an intangible representation of a physical object, i.e., portions of the anatomy of a patient. The transformation occurs when the condition of the human body is measured with X-rays and the X-rays are converted into electrical digital signals that represent the condition of the human body. The real world value of the invention lies in creating a new CAT scan image of body tissue without the presence of bones.

- A method of using a computer processor to conduct seismic exploration, by imparting spherical seismic energy waves into the earth from a seismic source, generating a plurality of reflected signals in response to the seismic energy waves at a set of receiver positions in an array, and summing the reflection signals to produce a signal simulating the reflection response of the earth to the seismic energy. In this example, the electrical signals processed by the computer represent reflected seismic energy. The transformation occurs by converting the spherical seismic energy waves into electrical signals which provide a geophysical representation of formations below the earth's surface. Geophysical exploration of formations below the surface of the earth has real world value.

Examples of claimed processes that independently limit the claimed invention to safe harbor include:

- a method of conducting seismic exploration which requires generating and manipulating signals from seismic energy waves before "summing" the values represented by the signals (*Taner*, 681 F.2d at 788, 214 USPQ at 679); and

- a method of displaying X-ray attenuation data as a signed gray scale signal in a "field" using a particular algorithm, where the antecedent steps require generating the data using a particular machine (e.g., a computer tomography scanner). *Abele*, 684 F.2d at 908, 214 USPQ at 687 ("The specification indicates that such attenuation data is available only when an X-ray beam is produced by a CAT scanner, passed through an object, and detected upon its exit. Only after these steps have been completed is the algorithm performed, and the resultant modified data displayed in the required format.").

Examples of claimed processes that do not limit the claimed invention to pre-computing safe harbor include:

- "perturbing" the values of a set of process inputs, where the subject matter "perturbed" was a number and the act of "perturbing" consists of substituting the numerical values of variables (*Gelnovatch*, 595 F.2d at 41 n.7, 201 USPQ at 145 n.7 ("Appellants' claimed step of perturbing the values of a set of process inputs (step 3), in addition to being a mathematical operation, appears to be a data-gathering step of the type we have held insufficient to change a nonstatutory method of calculation into a statutory process.... In this instance, the perturbed process inputs are not even measured values of physical phenomena, but are instead derived by numerically changing the values in the previous set of process inputs.")); and

- selecting a set of arbitrary measurement point values (*Sarkar*, 588 F.2d at 1331, 200 USPQ at 135).

If a claim does not clearly fall into one or both of the safe harbors, the claim may still be statutory if it is limited to a practical application in the technological arts.

Appellants respectfully submit that the recitations of Claim 87 related to the evaluation and study of data related to chemical processes, hazard scenarios and resolution plans for hazard scenarios clearly falls within this safe harbor. Moreover, the steps of "conducting the selected study type on the chemical process in the data processing system", "wherein the chemical process is evaluated in the data processing system for the presence of the hazard scenario", the step of "generating a resolution plan to the hazard scenario" and the step of "tracking the resolution plan to monitor completion of action items" is clearly the type of transformation of the original data for the chemical process to be evaluated and the study type to be performed, that is contemplated by this safe harbor.

For at least these reasons, statutory subject matter is present, and the final rejection should be reversed.

## **II. Introduction to 35 USC §103 Analysis**

A determination under §103 that an invention would have been obvious to someone of ordinary skill in the art is a conclusion of law based on fact. *Panduit Corp. v. Dennison Mfg. Co.* 810 F.2d 1593, 1 U.S.P.Q.2d 1593 (Fed. Cir. 1987), *cert. denied*, 107 S.Ct. 2187. After the involved facts are determined, the decision maker must then make the legal determination of whether the claimed invention as a whole would have been obvious to a person having ordinary skill in the art at the time the invention was unknown, and just before it was made. *Id.* at 1596. The United States Patent and Trademark Office (USPTO) has the initial burden under §103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

To establish a *prima facie* case of obviousness, the prior art reference or references when combined must teach or suggest *all* the recitations of the claims, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. §2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. §2143.01, citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). As emphasized by the Court of Appeals for the Federal Circuit, to support combining references, evidence of a suggestion, teaching, or motivation to combine must be **clear and particular**, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). In another decision, the Court of Appeals for the Federal Circuit has stated that, to support combining or modifying references, there must be **particular** evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000).

Appellants respectfully submit that the pending claims are patentable over the cited references, because the combination of Herrington, Heinlein and OSHA simply does not describe or suggest (1) selecting a chemical process to be evaluated and a study type to be performed on the chemical process and (2) generating a resolution plan to the hazard scenario in the data processing system, wherein the resolution plan comprises a final action item, at least one interim action item to be completed prior to the completion of the final action item, and at least one target date for completing an action item, as recited in the independent claims. These reasons will be described in detail below.

**A. Independent Claims 87, 92 and 97 Are Patentable Over Herrington In View of Heinlein and In Further View of OSHA**

Independent Claims 87, 92 and 97 were rejected under 35 USC §103(a) as being unpatentable over Herrington in combination with Heinlein. These claims were also rejected under 35 USC §103 as being unpatentable over Herrington in combination with Heinlein taken with OSHA. However, these claims are patentable at least because the combination of references does not describe or suggest selecting a chemical process to be evaluated and

selecting a study type to be performed on the chemical process, as recited in the independent claims. Moreover, the combination of references does not describe or suggest generating a resolution plan to the hazard scenario in the data processing system, wherein the resolution plan comprises a final action item, at least one interim action item to be completed prior to the completion of the final action item, and at least one target date for completing an action item. Each of these grounds of patentability will be analyzed separately.

(1) The Combination of Herrington and Heinlein Does Not Describe or Suggest Selecting a Chemical Process To Be Evaluated And Selecting a Study Type to Be Performed on the Chemical Process

The Final Office Action concedes, at Paragraph 23 on Page 8, that the primary reference Heinlein does not disclose "the limitation of...selecting a chemical process and study type".

In an attempt to supply the missing teaching, the Final Office Action cites Herrington. However, Herrington does not describe computer-based methods for performing process hazard analysis. Rather, Herrington discloses a method for using the Tennessee Eastman Division Process Hazard Analysis (TEDPHA) team of people to provide guidance regarding the contents of the Mechanical Integrity (MI) program in compliance with OSHA's regulations. See the paragraph bridging Pages 111 and 112 of Herrington:

After trying a number of approaches to actually doing the classification of individual items, it was decided that members of the Process Hazard Analysis (PHA) team would be best qualified to make this call. So, for all processes for which the PHA had been completed, knowledgeable experts from the PHA team were given training on the MI classification process, and they used this training, the PHA results, and their judgment to make the classifications. In cases where the PHA had not yet been performed, operations personnel developed "preliminary critical lists" which are then reviewed and revised later, once the PHA is completed. (Emphasis added.)

Thus, this passage simply states that: (a) for processes where a PHA had been completed, and (b) where the team members had knowledge of the potential hazards that might be caused by a mechanical failure, it is very efficient to allow these people to help classify equipment as routine or critical in the MI program. It does not suggest selecting a chemical process to be evaluated or selecting a study type to be performed on the chemical process, as recited in Claim 87.

The Final Office Action appears to concede that neither Herrington nor Heinlein describes or suggests the claim recitations of:

selecting a chemical process to be evaluated;  
selecting a study type to be performed on the chemical process....

However, the Final Office Action appears to interpret these claim recitations trivially by interpreting the claim elements of "selecting" so broadly as to read on selecting a study type or no study type, or selecting a chemical process or no chemical process. Appellants respectfully submit that the present claim recitations of "selecting a chemical process to be evaluated" and "selecting a study type to be performed on the chemical process" should be interpreted non-trivially, to mean selection from among a plurality of processes and/or study types, rather than interpret trivially as selecting no study type or no process. The Final Office Action has not shown any description or suggestion of the above-quoted selecting steps when they are interpreted non-trivially. In particular, Paragraph 18 of the Final Office Action cites Heinlein Column 3, lines 21-56, as describing such a selection. However, this passage of Heinlein clearly relates to conducting a single process safety management study for a single process. In particular, this passage states:

The invention comprises a computer network for gathering information in a multi-user collaborative environment in order to conduct PSM. The information includes input such as comments and ideas from team members participating in a session. Apparatus is provided for storing and retrieving these inputs from a data base as well as printing them in predetermined formats. The system provides for team members to submit their ideas anonymously in a meeting so that people uncomfortable with speaking in front of a group can share their ideas. The system provides automatic recording of input so ideas are not lost or mis-recorded and ideas are simultaneously entered saving valuable group time. Apparatus for automatic voting and tallying of votes is provided to allow consensus to be reached quickly.

Preferably apparatus is also provided to convert data from the input data base to a format for a word processing system to produce the required documents, a project management system to schedule the work (e.g. produce PERT charts), and a flow-charting system to produce process flow-charts.

The claimed steps of "selecting a chemical process to be evaluated" and "selecting a study type to be performed on the chemical process" are not described or suggested if these steps are interpreted non-trivially. For at least these reasons, Claims 87, 92 and 97 are patentable over Herrington in view of Heinlein.

(2) Neither Herrington Nor Heinlein Nor OSHA Describe or Suggest Generating a Resolution Plan Including A Final Action Item, At Least One Interim Item and At Least One Target Date

Appellants also respectfully submit that neither Herrington nor Heinlein nor OSHA describes or suggests the following recitations of Claim 87, or the analogous recitations in Claims 92 or 97:

...generating a resolution plan to the hazard scenario in the data processing system, wherein the resolution plan comprises a final action item, at least one interim action item to be completed prior to the completion of the final action item and at least one target date for completing an action item....

In particular, Herrington does not appear to contain any description of resolution plans. Moreover, the only potentially relevant portions of Heinlein et al. are Heinlein et al. Column 2, lines 31-36 and Column 6, lines 53-55, that state:

5. Establish a system to promptly address findings and recommendations, assure recommendations are documented and resolved, develop a written schedule for completing actions, communicate actions to operating, maintenance and other employees, and to perform and document the actions taken....

The TeamFocus® session output is copied to diskette and loaded into a project management tool for analysis and tracking.

However, these passages do not provide any description or suggestion of the above-quoted recitations of Claim 87, nor does the Official Action appear to cite any portion of Herrington or Heinlein et al. that describe or suggest these recitations.

In the "Response to Arguments" section of the Final Office Action, Paragraph 16, the Examiner also cites to OSHA Page 26, lines 15-28, as describing these recitations. This cited passage of the OSHA document simply states:

13. Emergency Preparedness. Each employer must address what actions employees are to take when there is an unwanted release of highly hazardous chemicals. Emergency preparedness or the employer's tertiary (third) lines of defense are those that will be relied on along with the secondary lines of defense when the primary lines of defense which are used to prevent an unwanted release fail to stop the release. Employers will need to decide if they want employees to handle and stop small or minor incidental releases. Whether they wish to mobilize the available resources at the plant and have them brought to bear on a more significant release. Or whether employers want their employees to evacuate the danger area and promptly escape to a preplanned safe zone area, and allow the local community emergency response organizations to handle the release. Or whether the employer wants to use some combination of these

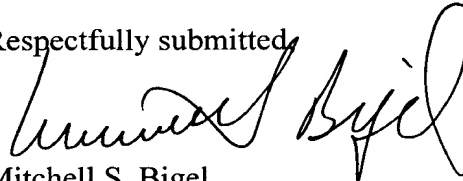
actions. Employers will need to select how many different emergency preparedness or tertiary lines of defense they plan to have and then develop the necessary plans and procedures, and appropriately train employees in their emergency duties and responsibilities and then implement these lines of defense.

Again, Appellants respectfully submit that this passage simply does not describe or suggest the above-quoted recitations of Claim 87. Accordingly, the cited references, even if combined, do not teach all the recitations of the independent claims.

### III. Conclusion

In summary, Appellants respectfully submit that independent Claims 87, 92 and 97 clearly recite statutory subject matter, and the cited references simply do not teach all the recitations of these claims. The remaining dependent claims are patentable at least as depending from patentable independent Claims 87, 92 and 97. Accordingly, Appellants respectfully request reversal of the rejection of Claims 2-16, 26-39, 48-61 and 87-101 based on the cited references.

Respectfully submitted,



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### CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Appeal Brief-Patent, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 28, 2005.



Susan E. Freedman

Date of Signature: June 28, 2005

## **APPENDIX A**

### **In the Claims:**

1. (Canceled)
2. (Previously Presented) The method of Claim 87, wherein the study type is selected from the group consisting of Tennessee Eastman Division Process Hazard Analysis (TEDPHA), Texas PHA (TEXPHA), Maintenance and Operability (MOP) and Distributed Control System (DCS) study types.
3. (Previously Presented) The method of Claim 87, wherein the PHA is conducted in order to comply with the Process Safety Management (PSM) standard and the Environmental Protection Agency Risk Management Plan.
4. (Previously Presented) The method of Claim 87, wherein the chemical process is evaluated for a Worst Case Credible Consequence hazard scenario.
5. (Previously Presented) The method of Claim 87, wherein the study type is a revalidation study of the chemical process.
6. (Previously Presented) The method of Claim 87, wherein the study type is an initial study of the chemical process.
7. (Previously Presented) The method of Claim 87, further comprising the step of dividing the process into nodes prior to the conducting step.
8. (Previously Presented) The method of Claim 87, wherein the conducting step comprises the generation of a risk ranking of the hazard scenario.
9. (Original) The method of Claim 8, wherein the generation of a risk ranking comprises the analysis of a risk matrix.
10. (Previously Presented) The method of Claim 87, further comprising the step of customizing the study type prior to the conducting step.



11. (Original) The method of Claim 10, wherein the customizing step comprises generating a list of questions to evaluate the chemical process.

12. (Original) The method of Claim 10, wherein the customizing step comprises creating a risk matrix to evaluate the chemical process.

13. (Original) The method of Claim 12, wherein the risk matrix comprises parameters of consequence severity.

14. (Original) The method of Claim 12, wherein the risk matrix comprises parameters of the frequency of occurrence of a consequence.

15. (Previously Presented) The method of Claim 87, further comprising the documentation of the hazard scenario prior to the generation of the resolution plan.

16. (Previously Presented) The method of Claim 87, wherein the resolution plan comprises more than one action item.

17-25. (Canceled)

26. (Previously Presented) The system of Claim 92, wherein the selecting means comprises means for selecting the study type from the group consisting of Tennessee Eastman Division Process Hazard Analysis (TEDPHA), Texas PHA (TEXPHA), Maintenance and Operability (MOP) and Distributed Control System (DCS) study types.

27. (Previously Presented) The system of Claim 92, wherein the conducting means comprises means for evaluating the chemical process for a Worst Case Credible Consequence hazard scenario.

28. (Previously Presented) The system of Claim 92, wherein the selecting means comprises means for selecting a revalidation study of the chemical process.

29. (Previously Presented) The system of Claim 92, wherein the selecting means comprises means for selecting an initial study of the chemical process.

30. (Previously Presented) The system of Claim 92, wherein the conducting means comprises means for conducting a revalidation study of the chemical process.

31. (Previously Presented) The system of Claim 92, wherein the conducting means comprises means for conducting an initial study of the chemical process.

32. (Previously Presented) The system of Claim 92, further comprising means for dividing the chemical process into nodes prior to the study being conducted.

33. (Previously Presented) The system of Claim 92, the conducting means comprises means for generating a risk ranking of the hazard scenario.

34. (Original) The system of Claim 33, wherein the means for generating a risk ranking comprises means for analyzing a risk matrix.

35. (Previously Presented) The system of Claim 92, further comprising means for customizing the study type.

36. (Original) The system of Claim 35, wherein the customizing means comprises means for generating a list of questions to evaluate the chemical process.

37. (Original) The system of Claim 35, wherein the customizing means comprises means for creating a risk matrix to evaluate the chemical process.

38. (Previously Presented) The system of Claim 92, further comprising means for documenting the hazard scenario.

39. (Previously Presented) The system of Claim 92, wherein the means for generating a resolution plan to the hazard scenario comprises means for generating a resolution plan comprising more than one action item.

40-47. (Canceled)

48. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for selecting the study type comprises computer-readable program code for selecting the study type from the group consisting of Tennessee Eastman Division Process Hazard Analysis (TEDPHA), Texas PHA (TEXPHA), Maintenance and Operability (MOP) and Distributed Control Computer program product (DCS) study types.

49. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for conducting the study type comprises computer-readable program code for evaluating the chemical process for a Worst Case Credible Consequence hazard scenario.

50. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for selecting the study type comprises computer-readable program code for selecting a revalidation study of the chemical process.

51. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for selecting the study type comprises computer-readable program code for selecting an initial study of the chemical process.

52. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for conducting the study type comprises computer-readable program code for conducting a revalidation study of the chemical process.

53. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for conducting the study type comprises computer-readable program code for conducting an initial study of the chemical process.

54. (Previously Presented) The computer program product of Claim 97, further comprising computer-readable program code for dividing the chemical process into nodes prior to the study being conducted.

55. (Previously Presented) The computer program product of Claim 97, computer-readable program code for conducting the selected study type comprises computer-readable program code for generating a risk ranking of the hazard scenario.

56. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for generating a risk ranking comprises computer-readable program code for analyzing a risk matrix.

57. (Previously Presented) The computer program product of Claim 97, further comprising computer-readable program code for customizing the study type.

58. (Original) The computer program product of Claim 57, wherein computer-readable program code for customizing the study type comprises computer-readable program code for generating a list of questions to evaluate the chemical process.

59. (Original) The computer program product of Claim 57, wherein the computer-readable program code for customizing the study type comprises computer-readable program code for creating a risk matrix to evaluate the chemical process.

60. (Previously Presented) The computer program product of Claim 97, further comprising computer-readable program code for documenting the hazard scenario.

61. (Previously Presented) The computer program product of Claim 97, wherein the computer-readable program code for generating a resolution plan to the hazard scenario comprises computer-readable program code for generating a resolution plan comprising more than one action item.

62-86. (Canceled)

87. (Previously Presented) A method of conducting a process hazard analysis (PHA), comprising the following steps that are performed in a data processing system:  
selecting a chemical process to be evaluated;  
selecting a study type to be performed on the chemical process;

conducting the selected study type on the chemical process in the data processing system, wherein the chemical process is evaluated in the data processing system for the presence of a hazard scenario;

generating a resolution plan to the hazard scenario in the data processing system, wherein the resolution plan comprises a final action item, at least one interim action item to be completed prior to the completion of the final action item and at least one target date for completing an action item; and

tracking the resolution plan in the data processing system, to monitor for completion of action items, wherein the status of the resolution plan is monitored for completion of action items by the target date.

88. (Previously Presented) The method of Claim 87, further comprising the step of generating at least one report.

89. (Previously Presented) The method of Claim 88, wherein the report comprises a description of the hazard scenario and the resolution plan.

90. (Previously Presented) The method of Claim 87, further comprising the step of generating a resolution database after the step of generating the resolution plan.

91. (Previously Presented) The method of Claim 90, wherein the resolution database comprises one or more parameters selected from the group consisting of the names of persons responsible for carrying out the resolution plan, departments responsible for carrying out the resolution plan, sites at which the resolution plan will be carried out, target dates for completion of the resolution plan, completed action items, and uncompleted action items.

92. (Previously Presented) A data processing system for conducting a process hazard analysis, comprising:

means for selecting a chemical process to be evaluated;

means for selecting a study type to be performed on the chemical process;

means for conducting the selected study type on the selected chemical process,

wherein the chemical process is evaluated in the data processing system for the presence of a hazard scenario;

means for generating a resolution plan to the hazard scenario, wherein the resolution plan comprises a final action item, at least one interim action item to be completed prior to the completion of the final action item and at least one target date for completing an action item; and

means for monitoring the status of the resolution plan for completion of action items by the target date.

93. (Previously Presented) The system of Claim 92, further comprising means for generating at least one report.

94. (Previously Presented) The system of Claim 93, wherein the means for generating at least one report comprises means for generating a report comprising a description of the hazard scenario and the resolution plan.

95. (Previously Presented) The system of Claim 92, further comprising means for generating a resolution database.

96. (Previously Presented) The system of Claim 95, wherein the means for generating a resolution database comprise means for generating a resolution database comprising one or more parameters selected from the group consisting of the names of persons responsible for carrying out the resolution plan, departments responsible for carrying out the resolution plan, sites at which the resolution plan will be carried out, target dates for completion of the resolution plan, completed action items, and uncompleted action items.

97. (Previously Presented) A computer program product for conducting a process hazard analysis, the computer program product comprising a computer-readable storage medium having computer-readable program code embodied in the medium, the computer-readable program code comprising:

computer-readable program code for selecting a chemical process to be evaluated;  
computer-readable program code for selecting a study to be performed on the chemical process;

computer-readable program code for conducting the selected study type on the chemical process, wherein the chemical process is evaluated for the presence of a hazard scenario;

computer-readable program code for generating a resolution plan to the hazard scenario, wherein the resolution plan comprises a final action item, at least one interim action item to be completed prior to the completion of the final action item, and at least one target date for completing action item; and

computer-readable program code for monitoring the status of the resolution plan for completion of action items.

98. (Previously Presented) The computer program product of Claim 97, further comprising computer-readable program code for generating at least one report.

99. (Previously Presented) The computer program product of Claim 98, wherein the computer-readable program code for generating at least one report comprises computer-readable program code for generating a report comprising a description of the hazard scenario and the resolution plan.

100. (Previously Presented) The computer program product of Claim 97, further comprising computer-readable program code for generating a resolution database.

101. (Previously Presented) The computer program product of Claim 100, wherein the computer-readable program code for generating a resolution database comprise computer-readable program code for generating a resolution database comprising one or more of parameters selected from the group consisting of the names of persons responsible for carrying out the resolution plan, departments responsible for carrying out the resolution plan, sites at which the resolution plan will be carried out, target dates for completion of the resolution plan, completed action items, and uncompleted action items.